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THE AGRICULTURAL STUDENT

OHIO STATE UNIVERSITY, COLUMBUS, OHIO



DECEMBER, 1919

CONTRIBUTORS

MORRIS E. DAVIS
T. H. PARKS
L. H. GODDARD

G. F. JOHNSON
ORMAN R. KEYSER
H. L. GARTNER

GEO. W. TIMMONS

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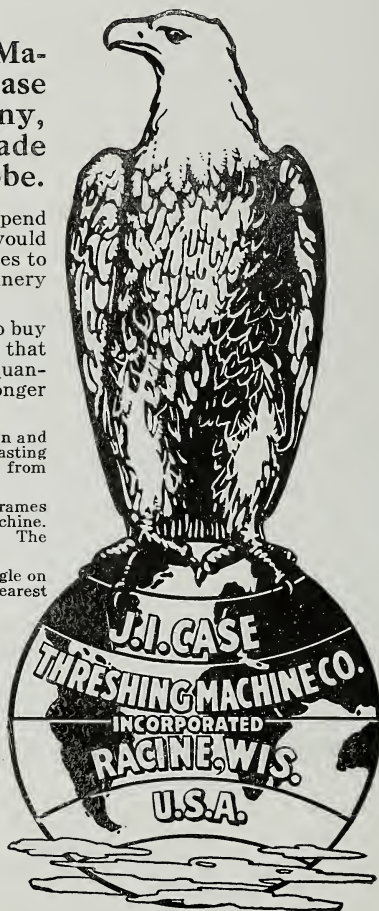
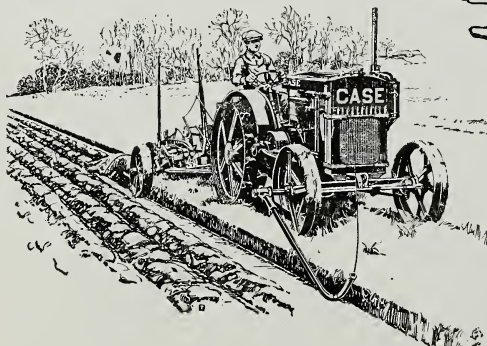
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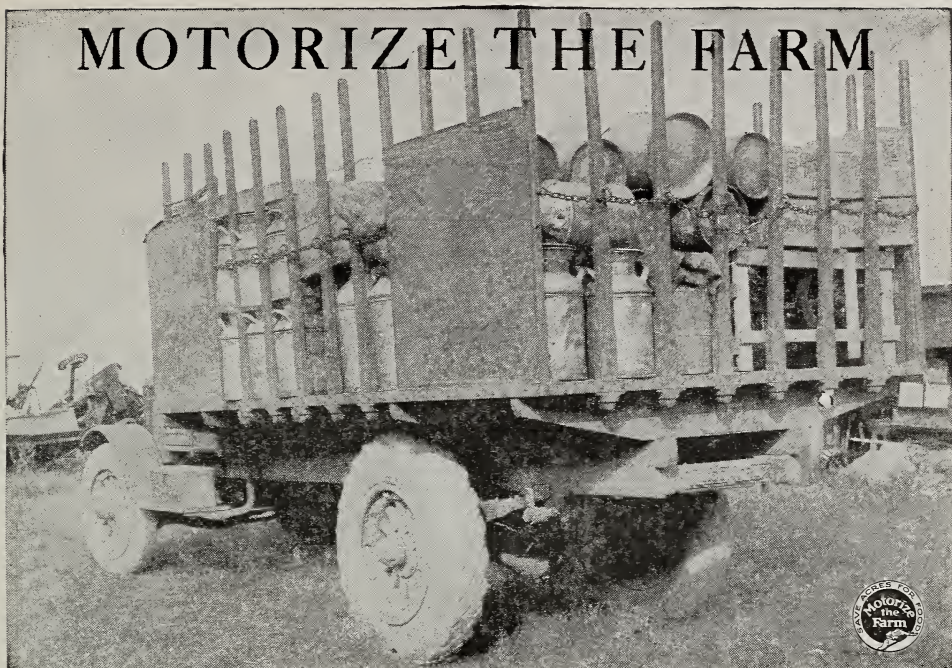


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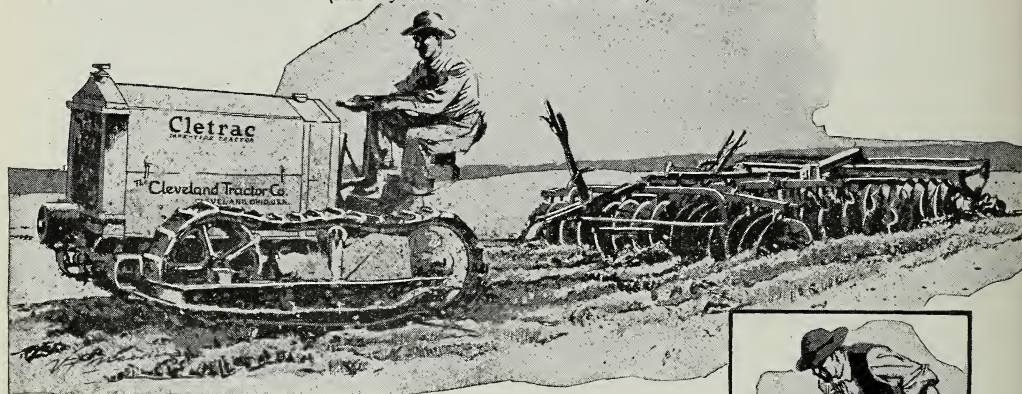
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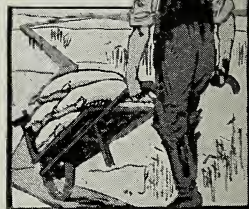
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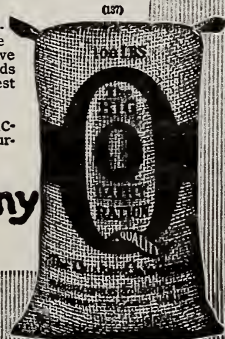
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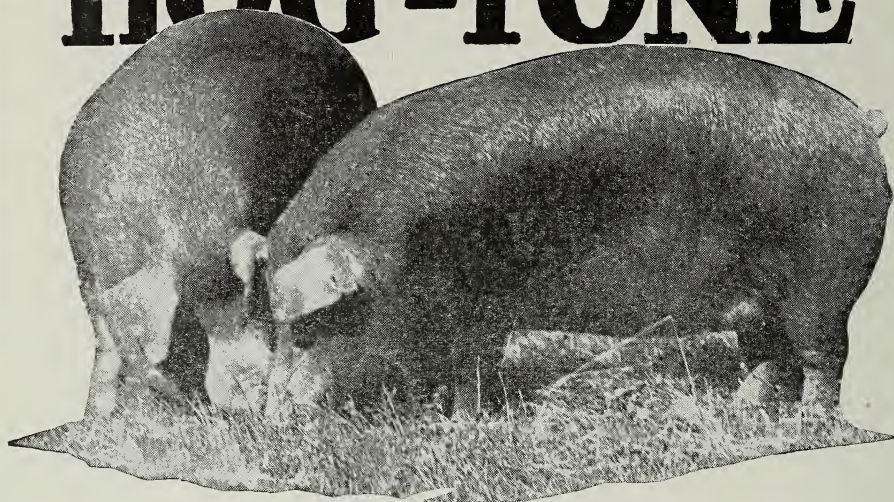
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*There never was a leaf on bush or tree,
 The bare bough rattled shudderingly;
 The river was numb and could not
 speak,
 For the weaver Winter its shroud had
 spun;
 A single crow on the tree-top bleak
 From his shining feathers shed off the
 cold sun;
 Again it was morning, but shrunk and
 cold,
 As if her veins were sapless and old,
 And she rose up decrepitly
 For a last dim look at earth and sea.*

—JAMES R. LOWELL.

The Agricultural Student

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No. 3

YULETIDE ON THE FARM

By CININNATUS.

“NOW comes the Christmas—of all our festal days the most blest and the most holy. 'Tis the anniversary of the advent of the Brotherhood of Man, my son, the sacred significance of which should sink deep into your heart, moulding from your youth a good man—a man with a loving heart, a glad-some spirit, a hand ever outstretched in aid of his fellows.

“Would you behold the Yuletide season in her true glory, my son? Then come with me to the open country, to the land of farmsteads and forest and field, there will we find Christmas as it was meant to be.

“We shall go to yonder hilltop, my son, and on the rural landscape gaze. Mayhap our gazing to pondering will lead, and pondering may a lesson give.

“Behold, all the expanse of Nature is clothed in a blanket of white, the broad vale below us, the encompassing hills. They lie serenely under the glistening carpet of snow, unsullied by the dirt or smoke of traffic. The crust-ed pines against the winter's sunset are the inspiration of poets. The golden-rod and teasel, with their burdens of snow, bending gracefully at the breath of Boreas; the fairy lacework of birches and beeches, forming billowy masses of white by the road side; the forest brooks, chained in glittering armor; the tell-tale tracks of the “cotton-tail” in the snow; the brave chickadees, the fearless juncos, the modest quail, the foraging crow; all these form wonders

in abundance, and in them we delight.

“The musical jingling of many tiny bells meets the ear. Oh, around the turn of the road swings the sleigh, drawn by swift, sleek sorrels. 'Tis a party of rollicking, rural revelers, and gladsome, gleeful shouts bubble forth from hearts pure and o'erflowing with joy and health and living.

“See, they draw in at yonder farmhouse with the white smoke of a wood fire rising heavenward from its huge chimney.

“What a scene of peace and prosperity, content and happiness, the mere-
stead presents. The broad, level fields, the woodlot, the orchard, the barn and the cribs filled to bursting, the comfortable quarters for the beasts, the rambling, well-kept farmhouse, the—
What, time to light the lamps? Yes, already the sun has dropped out of sight behind the hill. Evening shadows lengthen.

“There is a light in every farmhouse now. And soon, the bounteous supper finished, the sleighloads of country folk will gather at the church in yonder little village, and on leaving take away, each the heart full of cheer, and gladness, and praise, each 'his measure as he meted.'

“In search of a scene of happiness, are you? Then go where Nature and natural conditions are chiefest in the minds of men. 'Twill delight you when you observe this 'Yuletide on the Farm'.”

BUILDING UP THE FARM

By MORRIS E. DAVIS, Short Course, 1913

IN the history of "The Lower Scioto Valley," written in 1884, we found the following written therein concerning the township in which our farm is located: "It constitutes a tract of land which is rich in fire clay and limestone, fair in iron ore and coal, and poor as a farming country. * * * It was settled at a very early date, almost as soon as the earliest in the country. Why this locality was chosen was a mystery, since farming advantages were very poor, and the minerals then were not known."

While it may be a mystery why the early settlers, farmers as they were, settled here amid the hills of Jackson County, nevertheless, it is a fact that here they built their homes, cleared away the virgin forest and began farming on land that was not naturally fertile to start with. And their system of farming failed to maintain even the original fertility of the soil. What wealth they accumulated as farmers was generally at the expense of the land.

Later on the minerals were found here; iron ore, limestone, coal, and fire clay. Then they began to build iron furnaces and brick yards and to dig up the surface of the land for these minerals. By reason of the many acres of land thus dug up, combined with poor farming, we have many abandoned farms in our township, and many more acres that are being farmed at a loss.

On the home farm we were following a system of farming which we thought was better than the average in the township. Perhaps it was better, but, nevertheless, our farm was running down. We had been following a rotation of corn, wheat and hay as long as the sod would last. Usually we did not plow a

sod until we had to do so. Then we did not have much to plow under. Of course we manured our land, but much of the manure was left out in the open barnyard, being leached by the winter and summer rains. Also our rotation was without legumes and such a rotation was exhausting the fertility of the soil. We used to sow clover, but were having such poor success with clover and timothy that we discontinued sowing clover and used but little timothy, sowing mostly red top.

Sometimes we used to fertilize the corn by using 80 to 100 lbs. of fertilizer per acre. We also fertilized the wheat, but it was generally a 1-8-2. That was what the fertilizer agent sold as the "Wheat Special." We were afraid to use acid phosphate; heard others say it was hard on the land and would make the soil sour. Our soil was already about as sour as it could be.

After we had studied soil fertility and learned that lack of drainage, poor rotation, wastage of manure, sour soil, no legumes and inefficient use of fertilizers were some of the reasons why our farm was running down in fertility, we knew that to continue the old system was to further deplete the soil. In order to build a greater fertility we must adopt a constructive system of soil building. So in 1911 we began to lime, liming a part of the field we were planting to corn at the rate of $1\frac{1}{2}$ tons of ground limestone per acre. While this field would grow a good crop of corn, we had poor success in getting a stand of grass, usually wire grass, weeds and red top. It was stated at the time, "If lime will do any good it ought to show here." While there was not a noticeable difference in the corn and

wheat following on the limed and unlimed parts of the field, there was a marked contrast in the clover. In cutting the wheat on the limed part we found it difficult to cut the wheat high enough to keep the clover out of the sheaves, but on the unlimed part what clover there was seemed to hug the ground. The following year the limed part yielded two to three times as much hay.

Considering the fact that we had intended to use the ground limestone at the rate of two tons per acre if we could get it, the result of our first experience with limestone was more than satisfactory. At the same time we began to lime, we began to use from 600 to 800 lbs. of acid phosphate per acre, one-half applied with the corn and the other half with the wheat. Also we realized that in order to get the best results for manure, we must take better care of it. So a little later we built a covered barnyard.

Our system now is to spread the manure over the sod in the fall and winter to be plowed under for corn. After plowing, the land receives a dressing of one to two and one-half tons of ground limestone planting to corn. Before planting corn we also drill in 300 to 400 lbs. of acid phosphate per acre. With this treatment our yield of corn is gradually increasing. The fields we husked out in 1918 and 1919 averaged slightly over 70 bushels per acre. This year we filled our 12'x29' silo with four acres of Leaming corn.

The wheat in the fall receives 300 to 400 lbs. of acid phosphate. In response to this treatment our wheat in 1918 averaged 22 bushels per acre on 22 acres. In 1919, 17 acres averaged 25 bushels per acre. While this yield is

not high, it is more than double the average yield prior to liming.

It is with clover that we are getting the best results. The hay yielded is not only larger in quantity, but also better in quality. This year we began to cut our first crop of clover for hay on June 4th and were cutting the second crop by July 26th.

Since we began to lime we have used over 150 tons of ground limestone. We have so far confined most of our liming to the ground we are cropping. We expect later on to lime the fields that are being used for permanent pasture. We have been successful in getting good stands of clover by the use of limestone. In fact never on limed ground has clover been a failure with us. And often we could have cut a crop of clover the same year as the wheat that would have more than paid for the liming.

We have not found it practical to try to maintain the fertility of the soil without the use of legumes. Where the soil is sour, we can not get the most out of the legumes unless we do lime. And we see hundreds of acres every day that are not producing half of what they ought to, because the soil is sour. The Ohio Experiment Station has proved over and over that where land needs lime, no farmer can afford to farm without it even if it cost twice as much as at present.

While lime is great for the land, lime alone is not sufficient for the run down farm. But by liming, together with rotating, growing clover, feeding livestock, conserving the manure, liberal use of phosphorous and drainage, we are getting the best results in building up the home farm and increasing crop production.

MAKING GOOD IN HOOSIERDOM

By G. F. JOHNSON

WHO'S who among the Hoosiers? Of course opinions will differ but to me, a Buckeye, the Ohio Staters at work in Indiana are the Whos among the Hoosiers. So, in accordance with that idea my paragraphs will be given to a discussion of two Ohio State "grads" now making good in the Hoosier state.

Those of the alumni readers who tread the campus walks between 1910 and 1915 perhaps know and can recall these two long "Ags," who were always full of pep and doing something. Virgil A. Place, '12, is one and Stanley B. Sink, '15, is the other. Place hailed from Auglaize county and Sink from up near Finley.

Place specialized in animal husbandry and during his senior year was one of the three men to make the Dairy Judging team. He was a credit to the team too, by the way, being the high man in judging Guernseys and stood third highest man in the contest. Place was also a member of the Fat Stock Judging Team the same season. Besides being a good judge of live stock, Place took an active interest in the student work connected with the animal husbandry department. He helped to organize the Saddle and Sirloin club and assisted in putting on the first Ohio State Horse show. Do you remember that "six-footer" who tied the ribbons on the winners of that show? That was Place.

After graduation Place went to the University of Illinois and served as instructor in the animal husbandry department there for almost two years. He then came back to the Buckeye state and managed the Oakland Stock Farm

at Marysville for one year. Place migrated to Indiana about five years ago and has been serving Hoosier agriculture since then in the capacity of a county agent.

Sink specialized in Agronomy and graduated with the class of '15. He was manager of the Corn Show during his senior year and through his efforts, and others, the 1915 "Battle of the Kernels" was made one of the most successful events of its kind that Townshend Hall ever witnessed.

Sink was nicknamed "Fertilizer." The fellows who served as his agents during his college career, know the reason why. Sink, like some of the rest of us, had to work his way through college and he did it by getting some of the middleman's profits on fertilizer sold to farmers in Franklin and adjoining counties.

After graduating, Sink accepted a position as instructor in the agronomy department at the University of Maine. He was successful in his work up there as is evident from the fact that he was promoted to assistant professor during his second year there. Sink resigned this position at the end of the second year and came to Indiana as an extension worker.

Today Virgil A. Place and Stanley B. Sink are figured the two highest-salaried county agents in Indiana. Place is county agent in Lake county and Sink, in Porter county. These are two adjoining counties in the extreme northwest corner of Indiana. They make up a great dairy section bounded on the west by the Illinois state line and on the north by Lake Michigan. Thousands of gallons of milk are shipped each morning from this territory into Chi-

cago and the adjoining manufacturing towns. A dozen railroads pass through these counties and nine of the routes have special accommodations for milk shippers. The milk trains work their way through the dense dairy section each morning between seven and ten o'clock gathering eight gallon cans of milk at almost every crossroad. Just to get some idea of the amount of milk gathered by the trains I "stowed away" among the cans on one of the trains recently and rode for some dis-

izations of the Holstein breeders and dairymen and this fall sales were held in both counties. All stock sold was pure-bred and the average sale price per animal in each sale was over \$300. The Lake County association sold 65 individuals all with A. R. O. records.

The quality of the dairy stock in Lake and Porter Counties can be judged from the showing records as well as the sale's ring results. At the Indiana State Fair this year the majority of the high awards on the Holstein breed came



SOME PROMISING CALVES.

tance through the dairy section. In going a distance of nine miles 260 eight-gallon cans or 2080 gallons of whole milk were picked up.

There are approximately 20,000 dairy cows in these two counties and the most of them are either grade or pure-bred Holsteins. Silos are as common in this section as garages along a city alley and Holstein herds can be seen on almost every farm. Dairying is the big industry in these counties and their Buckeye county agents have been directing their best efforts to the promotion of it. They have worked up organ-

to the stock brought from these two counties.

Mr. Sink with the assistance of a committee of dairymen of his county selected 16 individuals from the herds of Porter County for exhibition at the state fair. Eighteen awards were taken by this selection of stock including the grand champion Holstein bull honor. Place and his Lake County dairymen did almost as well. They selected 26 individuals from their herds and took 19 awards from the fair.

Needless to say there is keen rivalry

(Continued on page 122)

THE HESSIAN FLY

By. T. H. PARKS, Extension Entomologist, Ohio State University

THE condition of the Ohio wheat crop in November was such that the Hessian fly and its work is being discussed in almost every section of the state. Only rarely does this injurious insect do so much damage to wheat in the fall as has just been done this year. Farmers everywhere are aware of the presence of the insect and the small dark green wheat plants, whose wilted appearance bespeaks the work of the Hessian fly larvae. The cream colored larvae of the Hessian fly hatched from eggs that were deposited on the leaves of wheat soon after they came through the ground. The parent or adult form is a two winged insect which very closely resembles a small mosquito. So abundant were the adult flies in the fields during September and the first days of October, that 40 to 70 fly eggs were frequently found on one wheat blade, which had come up only 3 or 4 days before. Egg laying was prolonged over the usual time in all sections of the state. Dates that were safe for sowing to avoid the Hessian fly in 1918 proved to be too early in 1919. The prolonged warm weather during the fall and the absence of killing frosts in all parts of the state until late in November no doubt brought this about. One year ago no Hessian fly was found in all wheat sowed before September 20th in Sandusky, Erie, Huron and Lorain counties. This year it is found in all wheat sowed before September 27th in those counties. One year ago none was found in wheat sowed after September 24th in Union county. This year it is found in all wheat sowed before the 29th in that county.

The larvae of the Hessian fly attach to the plant just above the junction of

the stalk to the root, and can be found by stripping the leaves from the "stools" or "tillers." In fields which were sowed early, many of the original plants are dead. From some of the badly infested plants new shoots have sprung up from below the injured part, and these new shoots are free from fly and are attempting to replace a badly damaged stand of wheat. It is almost certain that these uninfested shoots in an early sowed field will become heavily infested in the spring, when the second, or spring brood makes its appearance.

After the larvae becomes full grown they transform to the brown "flaxseed" or resting stage in which condition the insect passes the winter and from which emerges the adult of the spring brood in April and May. These may deposit their eggs in the same field, or be carried to distant fields by the light breezes of late April and early May. In this manner all fields will doubtless become infested in the spring regardless of when they were sowed. The maggots of the spring brood suck the sap from the green straws near the first or second joint from the ground. This may later cause the straw to lodge and give rise to the tangled straw-broken condition which is produced at harvest time during severe outbreaks of Hessian fly.

Owing to the delayed departure of the adult flies from the fields this fall, probably two-thirds of Ohio wheat fields now have too many damaged plants. Many of these will winter-kill. Others only slightly damaged will send out new tillers to repair the injury done. As usual, the most seriously injured fields of wheat are those which were sowed early.

In many cases these will need to be

(Continued on page 132)

THE PROPOSED ANIMAL HUSBANDRY GROUP

By GEORGE W. TIMMONS, '22

(How the buildings will be located and appear when we visit the University in 1940 is herein described.)

NO project of the Ohio State University building program is demanding more attention, or is apt to be of more prominence for the next decade than the proposed group of Animal Husbandry buildings west of the river. The plan of the projected buildings as a group, which will be discussed in this article, is one of outstanding merit and deserves the attention, interest, and approval of every one, whether past, present, or prospective student of Ohio State. It deserves no less attention from those of Ohio to whom the well-fare and progress of their university bears such vital importance.

We are indebted, for the major plan and scientific details of this project to the departments of Animal Husbandry, Agricultural Engineering, and the University Architect's office. Too great credit cannot be accorded the members of these various departments who have contributed their time and efforts to the success of this plan. The Legislature two years ago generously appropriated the sum of \$10,000.00 for the erection of a Swine building and \$15,000.00 for a Sheep building. This appropriation lapsed at the end of the fiscal year last July, but the Legislature then in session willingly agreed to a re-appropriation of these amounts, and it is upon this financial basis that it is hoped to begin actual work on the group before cold weather halts building operations.

The plan itself is of special interest because of its many advantages. Let us first consider it from an educational standpoint. The actual problems confronting a farmer operating his farm, either partially or wholly on an animal

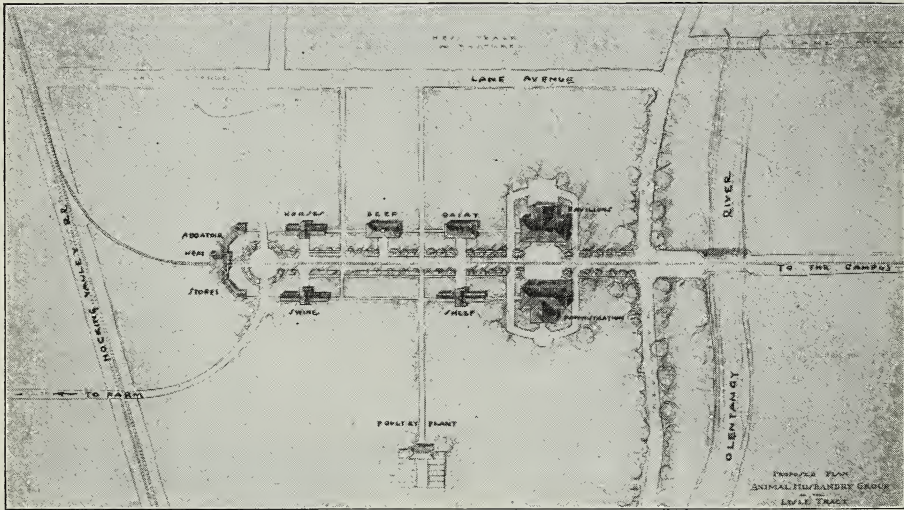
husbandry basis, are an important phase of the general study of Animal Husbandry. This new group of buildings will be constructed along lines best suited for study and state wide observation.

Viewed from the practical side, these buildings will provide shelter and ideal housing conditions for the livestock belonging to the University and consequently to the state. The idea must not be lost sight of that these buildings are primarily useful in the most practical sense but yet beautifully and symmetrically arranged, which latter feature makes them desirable for the beautification of the campus. Their practical plan arrangement, both inside and out, is particularly valuable for study in the Department of Agricultural Engineering. They will supply concrete examples of the principles and details of construction at present taught only by theory in that department. In a like manner these buildings will bear out the theories of farm construction advanced to the farmers of Ohio in bulletins. In a word they will make the visit of farmers to the University more pleasing and educating.

The main interest of the Alumni and students in general of the University lies in the fact that it is the pioneer movement in the expansion of the physical plant of the University across the river, and its relation to the athletic department. The logical position of this group at first appeared to be in that space between Neil Avenue and the river and King Avenue and the spur track of the railroad. This location seemed advantageous due to its relation

to other agricultural buildings adjoining Neil Avenue on the west and the general adaptability of the soil for pasturage purposes. This plan, however, gave way to the plan of the Athletic department because of their lack of another place to go. The facilities for athletic purposes above mentioned consist of a new Stadium, seating some 50,000 people, west of the present judging pavilion of the Animal Husbandry Department: a new Gymnasium west of Townshend Hall; a new Armory

mately one hundred animals and a Swine building, accommodating some seventy-five animals. The old buildings now used for these purposes are in a deplorable condition and present advantages for experimentation along the line of farm building arrangement. The buildings projected for future construction consist of: an Administration Building and Recitation Hall for the Department of Animal Husbandry; a Live Stock Judging Building consisting of one large pavilion and six small



THE PROPOSED ANIMAL HUSBANDRY GROUP

west of the Horticultural and Forestry building, and athletic facilities for five football fields, fourteen baseball diamonds, space for mass athletics, and military grounds for the Infantry, Artillery and Aviation units of the University.

The problem of the new Animal Husbandry group was presented by that department in the form of a building program to extend over a period of twenty years. The present and most felt needs of the department were a Sheep Barn to accommodate approxi-

judging spaces for classroom purposes; a Horse Barn for approximately twenty-five animals; a Dairy Barn, containing model dairy laboratory apparatus, for a producing herd of forty animals; a Beef Cattle Barn for a herd of forty beef type animals; a model Abbatoir or Slaughter House; a small Power Plant for steam power and heat; and a Receiving Department for supplies pertaining to the general department and the farm.

The solution of the problem as worked out is shown in the plan above.
(Continued on page 130)

TYPES OF EUROPEAN GRAIN THRESHERS

By ORMANN R. KEYSER

IT is not my intention to go into a detailed discussion of the various machines and methods which are popular in Europe, but rather to give only a general survey of the types of threshers used and the methods of operation followed thruout the various State or counties. If we were to take a trip through France, Belgium, Luxembourg and Germany, we would find represented many of the several steps in the evolution of our present day thresher and the methods of operation generally. Follow us, if you will, on our trip. We land at Brest, France, sometime in August. A couple of two wheeled "gigs" or probably a "one lunger" taxi may be procured to take us out in the country, but we prefer to walk. In a short time we are out of the city and in a farmers' village, all farmers live collectively in small towns or villages. Suddenly our attention is attracted in the direction of a group of buildings, surrounded by a high stone fence or wall, by chattering voices and a peculiar beating noise. A noise that reminds us of the time we gathered the bean stalks from the truck patch together into a pile and tried to thresh the beans from the pods by beating the pile with small clubs or pitch forks. After gaining our admittance within the wall we encounter the first threshing scene. Both men and women at work using one of the most primitive of threshers; namely, the flail.

Where the flail is used a special threshing floor must be constructed either out in the open or under some sort of roof. When it is made out in the open it is usually at a high place, where the water will run away from it in all directions, and the wind will in-

variably blow on it. The face of the floor is thickly paved with heavy clay and the center is made higher than any other part. All grain which, in the process of threshing, works to the outer edge is supposed to be the heaviest and for that reason is selected as seed. The bundles of grain are untied and



WINNOWING

laid on the floor with the heads uppermost in much the same manner as shingles are laid on a roof. After the kernels have been beaten out of the heads the straw is carefully shaken, lifted off the floor, rebound, and stacked. Occasionally it is stacked without being rebound. The grain is separated from the chaff or winnowed with a wooden shovel or winnowing basket. When there is a slight wind blowing a little of the mixture of grain and chaff is put in the winnowing basket which is used to toss the mixture lightly in the air several times. The wind carries the chaff a little distance away while the grain

is caught in the basket again. As fast as the grain is cleaned it is carried away to the granaries.

We must walk back into Brest to get a train for the provinces of Aube and Haute Marne, in the district of Champagne. For those who want to make a few more "stopovers" and see a little more of the country, I recommend the "Cheveau 8—Hommes 40" side door pullman special. But we prefer to take the common first class passage. This will land us near the town of Gondrecourt. Here we find a number of hand power threshers. Of course the hand power machines are also used in other parts of France and Europe, but we just happen to select this place.

The hand power thresher has much the same appearance, in size and shape, as our old corn stover cutters. The feeder's table is about eighteen inches wide and three feet long, and is placed so that the grain is delivered on top of the cylinder. This cylinder is merely a roller, about ten inches in diameter, bearing longitudinal processes which resemble the cleats on a tractor drive wheel. Both ends of the cylinder shaft are geared, in a manner similar to our fanning mills, to a crank. No concaves are used. Two men furnish the power, another unties the bundles and feeds the grain in small handfuls to the cylinder. The straw, grain, and chaff are delivered in the same pile at the rear end of the machine. Here the fourth man shakes the grain out of the straw and carries the latter to the fifth man who builds the stack. After about an hour's threshing the machine is stopped and the whole crew help in separation and cleaning of the grain. This is accomplished the same, usually, as when the flail is used. Sometimes a rude fanning mill is used in the process of separation. Six or eight bushels of wheat per hour

may be threshed with these hand power machines.

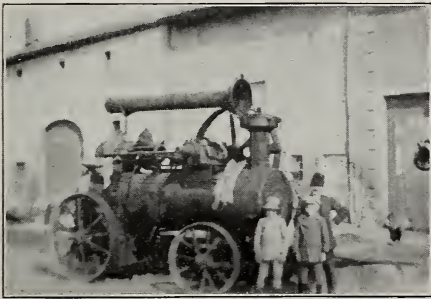
Upon arriving in Luxembourg City, of the Grand Duchy of Luxembourg, Hesperingen, Mondorf, and Remich "Narrow gauge." The engines of these trains are about as large as the "donkey" engines used by an American construction company, and the coaches are relatively the same size. We get off the train about six kilometers beyond Hesperingen in the direction of Mondorf. Here is a horse power thresher. But the threshing has been finished and the manager is indifferent about showing the machine. So we give him a cigarette. Now he will tell us all about it.

This thresher is not much more than an enlargement of the hand power machine but it accomplishes the task desired much more rapidly and efficiently. Besides the larger and higher speeded cylinder the main improvement is the addition of straw racks and agitators which accomplish the separation of the chaff and grain from the straw. The mixture of chaff and grain falls through the agitators to the ground whence it is removed with wooden hoes by several women. As the straw falls from the agitators to the ground several men carry it to the stack, which may be as much as two hundred feet away. After all of the bundles have been threshed the grain is separated from the chaff and cleaned by means of a fanning mill, the essentials of which are the same as those used in this country.

The power is transmitted to the thresher by means of a belt or tumbling rod from a horse power or gear. There are two kinds of horse gears used: namely, the endless chain mill and the circular sweep gear. I believe there are few who have never seen the dog tread mill that our grandfathers kept to

make the family dog furnish the power to operate the butter churn. The endless chain mill is nothing more than a dog tread mill built large enough for two heavy draft horses. The circular sweep horse gear is practically the same as the horse power we use with our drag saw machines. Four draft horses are used with this gear. The horse power machines will thresh thirty to forty bushels per hour.

Passing on into Germany to the vicinity of Coblenz and Cologne we find many steam propelled outfits. One of these outfits consists of a combined



THRESHING MACHINERY

thresher and separator and either a portable steam engine or a steam tractor.

The separator compares, in size and appearance quite favorably to our large sized clover hullers except that it has no self feeder or wind stacker. The machine is placed on the trucks in a fashion just the reverse from the custom followed in the construction of our machines; that is, the front trucks are placed under that end of the machine which we commonly term the rear end. For clearness we will speak of the cylinder end of the machine as the front end.

The cylinder is placed three and one-half or four feet from the front end of the machine. It consists of a drum bearing horizontal cleats which tend to

pass around the drum in a somewhat auger fashion. An opening of one-fourth inch is provided between the cylinder and the concaves. Heavy grates take place of our concaves. This arrangement removes the kernels from the heads by more of a rubbing process than the beating process employed in our threshers. Directly above the cylinder the feeder's table or stand, as it is called, forms part of the top of the machine. The grain is fed to the top of the cylinder and passes around the front side, after which the straw is thrown on the straw racks and the grain falls through the grates. Grain bottoms collect the grain and deliver it to the sieves of the grain shoe, which is immediately back of the fan and the fan is directly below the cylinder. After leaving the last of the sieves the grain is carried forward under the fan casing to an elevating auger which elevates it to the top of the machine in front of the cylinder. From here it is conducted down through a recleaning or finishing mill whence it is deposited in the farmer's grain sack. The chobs and carvings (we call them tailings) fall to the ground in a number of piles under the separator whence they are returned in a basket to the cylinder.

Sometimes these machines are equipped with a binding attachment, called a trusser, to rebind the straw into bundles as it leaves the thresher. This trusser is practically the same as the binding mechanism used in our self-binding grain reapers. In the absence of the trusser a large heavy straw carrier, mounted on a separate truck, is placed at the rear of the thresher to convey the straw to the stack.

An ordinary crew consists of two men to untie the bundles and hand them alternately to the feeder; one to take

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THE "LITTLE" INTERNATIONAL

By EUGENE F. TOWNSEND, '22

THE prize stock of the Department of Animal Husbandry was brought before the students of the University, Thursday night, November 20th, at the Judging Pavilion, by the Saddle and Sirloin club's "Little" International.

The show opened with the introduction of "Pepo," a gaited saddle horse, ridden by Mr. Smith, manager of the University farm. This horse was bred by the White Star Stock Farm of Delaware, Ohio. He is a fine specimen of the breed and afforded an opportunity for many to see a saddle horse in action for the first time.

The University has begun to breed Belgians and as a foundation they purchased a weanling horse colt and a filly a year ago. These have been shown very successfully in Ohio at the county fairs, and have successfully met all competition at the state fair this fall.

Libretto, one of the few Percheron stallions imported during the war was an animal which brought forth many exclamations of surprise and admiration as he moved across the pavilion. He was shown by Bell Bros., of Wooster, at the International in 1916, getting fifth place in a class where there was very strong competition. His influence on the stock at the University being brought out by the success of his colts at the fairs. One of his get was placed first and one-third at the state fair this fall and will be shown at the International in December.

A group of four Percheron mares was shown which as a group are considered the best in Ohio. This group topped the Percheron show this year at Ohio State Fair in the largest show that will be held in America this year. With these was shown one of David E. Fyffe's

work team, a black mare which can be criticised in that she is a little small which Mr. Fyffe admits but to which he answers that "she is one of a real good kind." She was shown in brass mounted show harness with a Scotch collar which made her show quality as only the Scotch know how to bring out.

The cattle show was headed by the venerable Alice, an eleven year old Angus cow that boasts of eleven sons and daughters, including two pair of twins. A "family tree" was established around this cow of her progeny which remains in the hands of the University. Some fine individuals which show the influence of good selection were among these animals. One of exceptionally fine type beef animal was Ohio's Sweetness, a yearling heifer.

Holsteins, Ayrshires, Jerseys and Guernseys were represented by some of the dairy animals of the University, some of which have been admitted to the Advanced Registry with nearly five hundred pounds of butter-fat in a year.

Several of the twenty-five hogs which will represent the University at the International Live Stock Exposition this fall were shown. Two Yorkshire sows were especially interesting because of the fact that they are not a popular type of hog in this country. They have somewhat the appearance of what the average American farmer would call a "razorback." This is due to the fact that they are strictly a bacon type which is the most popular in Europe where they are considered one of the finest breeds that we have.

A group of sheep of Southdown blood was very interesting because of the fact that they showed what a great improve-

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FARMING HIGH PRICED LAND

By L. H. GODDARD

(Is an upheaval coming? Mr. Goddard throws some light on the screen.)

CAN we afford to farm at the present high prices of land? This question is confronting many and causing no little worry. With this in mind let us consider the question more in detail.

In the first place I may say that I would not want to farm anything but high priced land. If I were to come into possession of a piece of low priced land which I was expected to farm I would want to make high priced land of it at the earliest possible moment. By this statement I do not mean that I would want to spend enough money on it to make it high priced, though, ordinarily, the process includes the spending of some little money.

Do we all realize, I wonder, that farmers capitalize all their profits into land prices just as do holders of common stock in a corporation capitalize the dividends secured into the price of the stock. It is of course common knowledge that if the stock dividend doubles with indication of continuing at that rate the price of the stock will double. Wherever you go in the agricultural section you will find that, except in the case of sharp abnormal changes in farm profits, farmers receive in return for their work, ordinary wages, part of their living, and about five percent on their investment. One year's change in the profits will not ordinarily affect the price of land. But if the profits from farming in a community are higher for several years in succession you will find the price of land going up until after deducting the farmers living and wage he will still secure five percent on the investment.

You will understand, of course, that I am speaking of the average farmer.

In every community some farmers are more successful than others. Ordinarily the most efficient one-fifth of the farmers in a community make a couple thousand dollars a year more than the fifth at the other end of the ladder, or to put it in another way make a larger interest on their investment.

Now what I mean when I say I would want to make the land high priced, is that I would want to farm it so efficiently that when my methods were adopted by a reasonable number of my neighbors the profits we would secure would force up the price of our land.

This effort to increase efficiency in farm practice, farm organization and community organization is the pleasurable part of the farming game. The uncertainty of the elements with which the farmer has to deal adds that much more chance for the use of his brain in mastering the situation. He must be conservatively bold. If he is afraid to try anything new he will fail. If he plunges after the fashion of men in other professions nature is very apt to pull him up with a jerk and throw him by the wayside a bankrupt.

Land which has such peculiar characteristics or which is so located that the profits from farming it cannot be increased is not worth fooling with from the standpoint of pleasure in the game. It had best be left for the fellow who compares with the bond coupon clipper in the financial world,—the fellow who will touch only a "sure thing."

Let us consider for a moment the corn belt land. Land in this section of Ohio had been going up steadily in price for a number of years before the war almost

(Continued on page 138)



EDITORIALS

THE GREATEST DAY OF THE YEAR

Christmas will soon be here, the greatest day among Christian nations, a day of festivities, well wishing, and a day chosen of God—the Anniversary of Man's Redeemer. It matters not how many times St. Nicholas has passed Christmas brings its anticipations, its joys, its happiness to us all, be it millionaire or the man who works in the trench, the rich or the poor. It is the greatest day on earth. Never shall we forget those days when we were young and looked forward to those days when our stockings would be filled, how we jumped out of bed bright and early, rushed to our stockings and found them overflowing with good gifts and good things, how we liked to greet our friends first with a Merry Christmas. Yes those are the days that are greatest and dearest to us.

And so in these days of commercial activity we like to stop and think of those childhood days, then look forward with more enthusiasm and go to our work with a happier lighter heart.

So in wishing you a Merry Christmas and Happy New Year the STUDENT hopes you may feel the same joy and enthusiasm that we do.

HOW ABOUT YOU?

Did you ever stop to think how fortunate you are. Just at the time of this writing the Editor noticed one of the men who had lost his sight in the Great War slowly finding his way along one of the cinder paths of the University. Somehow or other he wandered off into the grass and was lost for his cane failed to locate the walk. Then a good friend came along, took him by his arm, and led him back to the walk. That was real friendship.

But suppose you were deprived of your eyesight or were unable to walk or was disabled in some other way. Would you be slowly finding your way around the University in search of knowledge or would you have given up in despair and said there's no use. Yes, we are mighty lucky to be still intact and not deprived of that greatest sense, sight. Some of us never stop to think how fortunate we are and let many a good thing in life slip by. Sometimes it is a mighty good thing to stop and take an inventory of ourselves and see if we are doing what is best within us and making the most of the opportunities afforded us. Stop and look yourself over.

FARMERS SHOULD WELCOME THE CENSUS ENUMERATOR

THE work of taking the 1920 Census will soon be under way. There is no other single project undertaken by either state or federal government that should yield such large and valuable results as a complete census of our population and its industries. This year the director of the census has received aid from the U. S. Department of Agriculture in preparing the questions for farmers. He is making a great effort to get the data from the farmers that will be of the most value to them when it is compiled. For this reason farmers should give every assistance possible to the enumerators when they call. The director of the census is sending to every farmer an advance sheet to give some indication of what will be asked. If each one will make a particular effort to have this data ready for the enumerator it will not only facilitate the work but will add greatly to the accuracy of the final results.

The data collected from farmers and published in the census is quoted throughout the land by representatives in our legislative bodies, by newspapers, and by other agencies in an effort to influence the state policy toward the farming population. Much harm can be done in this way unless the farmers themselves take every means of getting for the enumerator accurate and reliable data regarding farming conditions. Most of our agencies presenting such information to the public have a sincere desire to see the agricultural population fairly treated, says O. R. Johnson of the University of Missouri, College of Agriculture. But if the data as collected by enumerators is not reliable, we can at once see that all conclusions

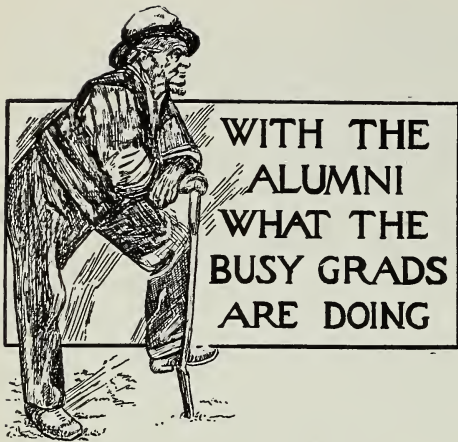
drawn therefrom may be very erroneous and harmful.

The collecting of census data is not in any way connected with the formation of schemes of taxation. It is an impartial and honest attempt to get at facts without any thought of increasing the farmers' burdens by taxation or any other means. The collecting of the material in the field is done very hurriedly by enumerators and this gives an additional reason for farmers being ready with the information desired when the enumerator arrives. Farmers are only helping themselves and other men in the farming occupation by giving accurate and complete data and doing it promptly. It is true that the agricultural statistics given in the census in the past have not been as useful as they might be. The cooperation of the U. S. Department of Agriculture for the 1920 Census is remedying this fault to a considerable degree.

One of the new phases of the work which is of interest to all farmers is the attempt to obtain information which will show how easy or how difficult it is and how long it requires for a young man starting out to farm for himself to become a land owner. It seems to most of us that it is becoming more and more difficult for a young man to own a farm—that the number of tenants in our agricultural communities is increasing. Whether this is true or not and just how true it is must be known before any definite steps can be taken to remedy the situation. This census should give some of the information needed.

Another important question dealing

(Continued on page 128)



Thomas B. Foster, '06, is County Agricultural Agent for Highland County. He has his headquarters at Hillsboro, Ohio.

James W. Hammond, '06, is in the Department of Animal Husbandry of the Experiment Station at Wooster.

Ernest D. Waid, '06, is the manager of a large dairy farm near Boston, Mass.

G. J. Wilder, '06, is a County Agricultural Agent in Illinois.

Francis L. Allen, '06, is farming near Van Wert, Ohio.

Burton L. West, '06, is Secretary of the Cussins and Fearn Company, Columbus, Ohio.

R. W. Harned, '06, is Professor of Entomology in the Mississippi A. and M. College.

Joseph A. Main, '06, is farming near Ostrander, Ohio.

William L. Clevenger, '06, is Dairy Specialist, U. S. Department of Agriculture. He is in charge of that department in North Carolina and Tennessee.

Norman E. Shaw, '06, is Secretary of the state department of agriculture in Ohio.

George T. Snyder, '06, is County Agent in Illinois.

Leland E. Call, '06, is head of the department of Farm Crops and Soils in the K. S. A. C., Manhattan, Kas.

R. C. E. Wallace, '06, is Professor of Soils, Purdue University.

True Houser, '06, is Botanist with the Agricultural Experiment Station at Wooster, Ohio.

Another name has been added to the list of Smith-Hughes workers. T. G. Vickery, '19, has recently become a teacher at Bluffton, Ohio.

G. K. Swalsion, H. W. Nisonger and J. L. Barnhart, all of class '14, have joined the list of Smith-Hughes workers. They are located at Rawson, Grove City and Delta respectively.

Leland S. Call, '06, who is in charge of the agronomy department at the University of Kansas, has recently accepted the position of Contributing Editor of Farm and Fireside.

Howard M. Call, '11, who was married last summer has recently taken charge of his father's farm near Akron, Ohio.

A. C. Kennedy, '15, is making good in Smith-Hughes work at Medina, Ohio.

Don W. Griffin, '11, is in charge of the betterment of agricultural conditions in Gwalior. He is superintendent of agricultural engineering working under the direct supervision of the Maharajah. Their latest acquisition was seven Avery tractors.

Miss Lita Steele, '12, while doing canteen work in France, met Mr. C. H. Harm, of London, England. As the result she is now Mrs. C. H. Harm, of San Francisco.

Ray Fife, '17, spent last summer at Cornell University in preparation for the position as Assistant State Supervisor of Rural Education in Ohio, which position he has recently accepted.

Geo. Bachman was a three-year Hort. man who is making a success at fruit growing at Vermillion.

Paul Barnes, '11, is supervisor of Agriculture at the Boys' Opportunity Farm at Glendale Farm, Ohio.

V. E. Burbaker, '12, is a county agent at Washburn, Wisconsin.

Arthur C. Brookley, '12, is teaching Agriculture in the High School at Harvey, Illinois.

R. O. Brigham, '12, is practicing medicine in Toledo. Peculiar isn't it for a Hort. man, but not being satisfied with the life of a farmer he returned to college and got his M. D. degree.

Ralph L. Barr, '12, is managing his home farm and doing a bit of Hort. work on the side.

Daniel LeRoy Ferguson, '16, well known as "Dan" in athletics here, is now dean of Rural Economics in a West Virginia Normal School.

C. L. Burkholder, '15, is in extension work at Purdue University.

H. A. Albing, '16, has been employed in city landscape work since his return from overseas.

Charles R. Runk, '19, is instructing in the Smith-Hughes School at New Carlisle, Ohio.

V. C. Smith, former Sec. of the College of Agr., and later with the Farm Crops Dept., is local representative for the Domestic Engineering Co., at Marion, Ohio.

Norman W. Scherer, formerly with the Farm Crops Dept., is operating the farm of Dr. Park, located near Urbana, Ohio.

E. Allen Geiger, '18, is making the Smith-Hughes High School at Edison, Ohio, a big success.

George L. Schuster, M. Sc., '18, is with the Farm Crops Dept., at the University of West Virginia.

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MAKING GOOD IN HOOSIERDOM

(Continued from page 109)

between Lake and Porter Counties. Mr. Place and his dairymen try to prove to Mr. Sink and his dairymen that the Lake County Holsteins are superior to Porters, and Mr. Sink by means of his county cow testing association and by the sales and show ring standing of his county's stock, demonstrates to men across the county line that Porter County stock need not tip its hat to Lake County stock. And so the race proceeds.

A good thing was accomplished last June. Mr. Sink invited Mr. Place and his Lake County dairymen over to Porter County for a tour of the leading herds of the county. They came over and had a good time. Then Mr. Place made arrangements for the next day to have Mr. Sink and his stockmen come over to Lake County to see their stock. They did and when the tour was completed all the members of the party got together and congratulated one another for having within the borders of their counties the leading Holstein individuals of the state.

Mr. Sink was instrumental in getting the cow testing association under way in his county. The association now has a membership of 19 dairymen who own close to 300 cows. Seven herds are entirely pure-breds and all herds are headed by pure-bred bulls. The Porter County association is one of the leaders of the state. In regard to this Mr. Sink says. "We have had a cow among the ten highest in the state every month so far this year. In five months out of eight we have had the highest cow. Two months we had five of the ten highest cows and one month four. Averaging the milk production for the ten highest cows in each of all the nine testing associations in the state and our ten

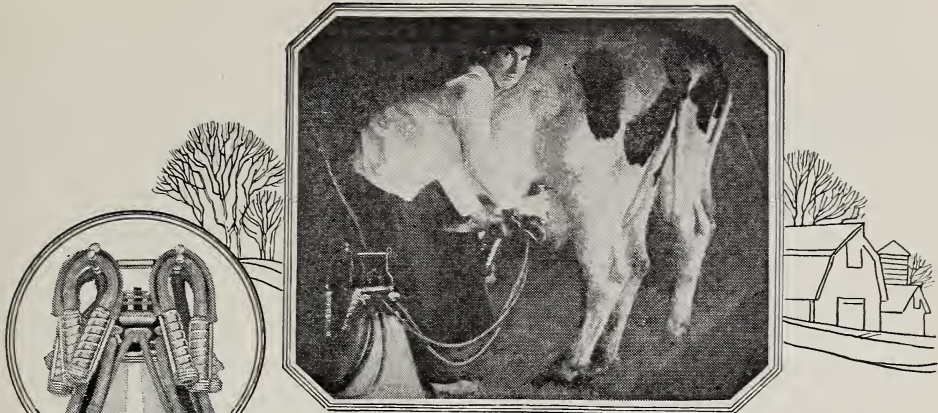
highest averaged 1,961 pounds and the next ten highest of any other association averaged 1,741 pounds. Our cows gave 74 pounds of butter in 30 days as an average and the next highest group of ten in other associations gave 70 pounds."

Beside dairy work, Mr. Sink has established a Shorthorn breeders association in his county and also a swine breeders organization. Other than live stock work, numerous demonstrations have been held in the county on treating oats and wheat smut. Two years ago only a few farmers in the county treated for smut; this past season more than 60 per cent of the farmers treated their oats and wheat seed. Last year the treatment saved the farmers of Porter County \$100,000. Mr. Sink has been doing a great service to the agriculture of his county by encouraging the growing of alfalfa, and the planting of soy beans with silage corn. Dairymen in the county today are very successful feeding a ration of alfalfa hay and good silage without commercial concentrates. Mr. Sink has introduced the self-feeder to his farmers. When he came into the county two years ago there were not more than six in the entire county while today there are more than a hundred. In connection with swine work, Mr. Sink was instrumental in checking the spread of hog cholera in Porter County. By working up an organization of the swine breeders he has been able to keep the county practically free from the disastrous disease.

Mr. Sink has made good. He was recently re-elected to the Porter County Agency by a unanimous vote of the county trustees. This is the first time that has occurred in the history of county agent work in Porter county.

Mr. Place over the county line has

(Continued on page 132.)



This 17-year-old girl milks 27 Holsteins with The Perfection

Twenty-seven cows, especially when some of them give as much as 100 pounds in a day, is quite a bunch for a girl to milk. When Theodore Gillis' 17-year-old daughter can handle them all alone with the Perfection, it's not hard to understand why Mr. Gillis thinks his milker is a wonderful machine.

Mr. Gillis has labor problems just like everybody else. And sometimes he's right up against the wall for hired help. But since he has a Perfection, his daughter can always help him out. "The Perfection Milker was rightly named," he says, "for it is a perfect milker and so easy to operate that my daughter, 17 years old, has milked my whole herd of 27 Holstein cows every night during the summer when we were short of help."

The Perfection Gets More Milk

"The Perfection gets more milk than any hand milker can get from my cows. One of my cows, 5 years old, gave as high as 102 pounds of milk in a day. A heifer gave 64 pounds in a day. One of my cows, which had been milked nearly two years without freshening we could not dry up without taking the machine off her."

Just Ask Your Neighbors

"We have several other kinds of milking machines in this neighborhood but everyone seems to think the Perfection gives the best results and is the most reliable machine."

Names, Addresses and Catalog Waiting For You

How much would it be worth to you to have your milking problem solved? Find out about the Perfection Milker. We'll gladly send you names and addresses of owners so you can investigate for yourself. Just ask the men who own Perfections what they think of them. We will also send without charge a copy of "What The Dairyman Wants To Know," the book that answers every question about milking machines. Write.

PERFECTION MANUFACTURING COMPANY

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The Perfection Is the Milker with the DOWNWARD Squeeze Like the Calf.

PERFECTION MILKER

EXPERIMENTS OF THE FARM CROPS DEPARTMENT AT OHIO STATE

By H. L. GARTNER, '21

TO a great many of us the amount of work being done by the Farm Crops Department of the College of Agriculture is both surprising and interesting. The Department controls about twenty-five acres of the University farm on which it is growing a great variety of crops. There are two underlying reasons for this work: first, to supply material for class room study, and second, to study experimentally various crops and cultural practices.

In addition to the material used in the various classes given by the department, a large amount is sent out each year to the Smith-Hughes high schools thruout the state. Specimens of all farm crops common or otherwise that can be grown in this latitude are produced. A large number of grasses and legumes, about one hundred varieties each of wheat and oats, and various subspecies of grain are grown each year.

One of the most important parts of the experimental work being carried on is the variety tests of wheat, oats, and soybeans. About fifteen varieties of each of these crops are being tested upon fortieth acre plots while a much larger number are being tested in rod rows. Already several early maturing varieties have been produced.

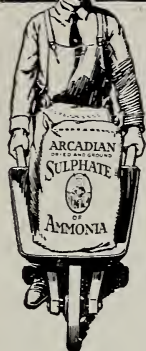
One of the experiments which has been very successful is that carried on in attempt to improve the quality of broom corn. Ordinary varieties of broom corn have a large percentage of heads with a thick central stem and a coarse crooked brush. Two years' selection has almost freed the improved strain of these objectionable features and has laid the foundation for a strain of great commercial value.

Some hybridization work upon wheat, oats, and barley has been carried on. The mode of inheritance of several characteristics in the grains has been determined and it is hoped that some improved varieties will be produced. A beardless barley is being grown which gives promise of being a success.

Two tests with corn which are especially valuable are being carried on. One has for its object the determination of the affect of time of harvesting upon the yield and quality of the corn crop. Three plots are used, two planted at the proper time and one about twenty days later. One of the early plots is harvested before it is mature while the late planted plot does not have time to mature. The yield of these two plots is compared with the yield of the plot which is allowed to properly ripen before harvesting. So far the tests have shown a heavy decrease in value when corn was harvested before being mature. The object of the other work with corn is to determine the effect of soybeans upon the corn crop when the two are grown together. There appears to be no reduction on the yield of corn and the total nutrients produced per acre is much more than from corn alone.

A test similar to that on corn is being carried out to determine the effect upon soybeans of harvesting at different stages of maturity.

While the experimental work of the past has not been given as great promise as the teaching side, it is of considerable importance and conclusions arrived at from time to time will be both valuable and interesting.



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We would like to tell you about ARCADIAN Sulphate of Ammonia; why it is the great American ammoniate; why it is the best top dressing for any crop that needs nitrogen; and how to use it most profitably.

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| No. 61—"Oats and Their Fertilization in the South." | No. 93—"Sulphate of Ammonia as a Nitrogenous Fertilizer." |
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Write us for anything in fertilizer or spray line

Nitrate Agencies Co.

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be expected to thresh about sixty bushels of wheat per hour.

All of these different types of grain-threshing outfits may be seen in the various provinces of France. In fact all of the different types can be found in any one of the nations of Europe without going into the several counties. But, naturally, we Americans find it more interesting to visit a number of our ninety-first cousins when once we find ourselves in Europe. Our party will now disperse and each will return to the port of embarkation or some other place by the way which he may prefer.

William T. McVey, George B. Arthur and E. L. Johnson were winners of the cash prizes offered to Student Judges from the Animal Husbandry Department of the University. McVey was also winner of the Shropshire Special.

EUROPEAN THRESHERS

(Continued from page 115.)

the straw away from the straw conveyor; two to build the stack; one to clear the chaff from under the machine and return the tailings to the feeder; one to take care of the grain sacks, and one at the engine.

There is little difference, in general appearance, between the portable steam engines used in Europe to operate threshers and those portable engines we used for the same purpose twenty years ago, except that the European engines are much lighter and carry less steam pressure. The pressure gauge shows an average pressure of 6.5 kilograms (about 90 lbs.). Their steam tractors are lighter, less powerful, clumsy and more awkward to handle than our tractors.

Ordinarily, these steam outfits may

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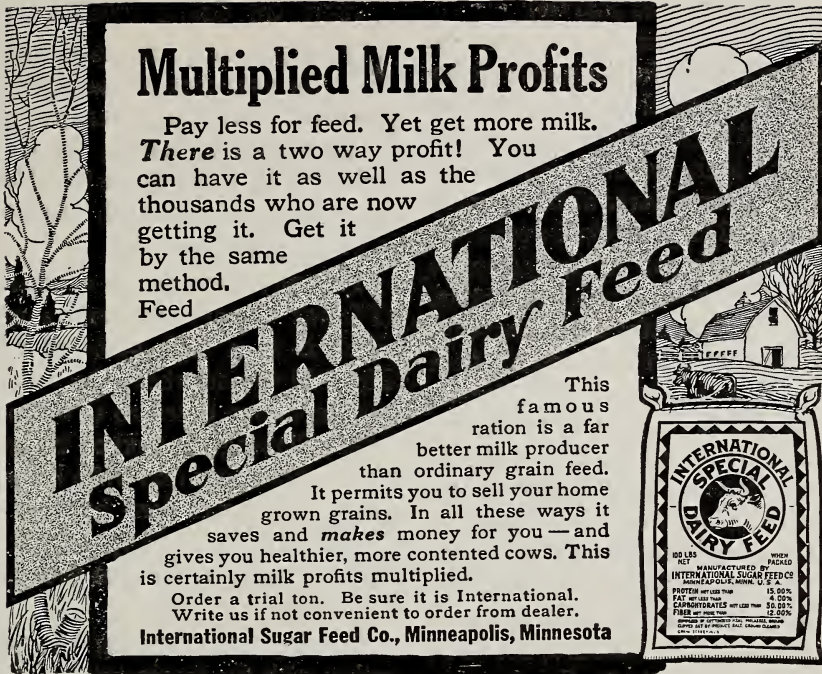
SUNDAY DINNER 12—2

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Suburban Sweets*

Special Parties by Appointment

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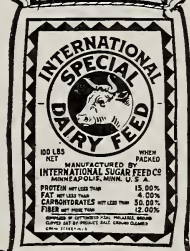
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This famous ration is a far better milk producer than ordinary grain feed. It permits you to sell your home grown grains. In all these ways it saves and *makes* money for you — and gives you healthier, more contented cows. This is certainly milk profits multiplied.

Order a trial ton. Be sure it is International.
 Write us if not convenient to order from dealer.
 International Sugar Feed Co., Minneapolis, Minnesota



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 invites all visitors of the Uni-
 versity to have a meal with them.
 Come.

Special Chicken Dinners on
 Sundays.

*American and
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**CHITTENDEN AVE. and HIGH
 STREET.**

(Continued from page 119)

with a source which has caused the farmer great losses in the past and for which he has received no price credit is the matter of abandoned acreage of various crops each season. Price commissions in various parts of the country have attempted to get cost of producing various farm crops so that farmers would be allowed cost of production. In collecting this information acreage that is a total loss has seldom been figured. This is a fair and legitimate charge to add to the cost of producing the various crops and the farmer should have credit for it. This census will attempt to determine how much this is.

Farmers must cooperate with the enumerators in getting this data before the public. The information is essential if any corrective measures are to be undertaken in justice to the farming profession, which is approximately one-third of the population of our country.

COST OF OATS PRODUCTION

WHILE many farmers look upon the oats crop as one which can be produced with little labor, yet yielding a fair return in money, complete records kept by a boy in the Smith-Hughes department of our high school shows interesting points.

This boy lives in the southern part of Lucas County on very sandy soil which is in a high state of fertility. The field was in wheat the year before but the clover failed so it was sown to oats. Plowing the field of 25 acres required $92\frac{1}{2}$ hours and $277\frac{1}{2}$ horse hours work. This was done between March 23 and April 4. Preparation of the seed bed required 34 man hours and 95 horse hours.

Grading and cleaning the seed together with the treatment for smut and sowing, consumed 32 man hours and 55

(Continued on page 135)

Prof. Rader's New Year Calendar

NEIL AVENUE ACADEMY

Take Neil Ave. Car and get off at Poplar Ave.

647 Neil Ave.—Phones: Citz. 4431; M. 6189



Beginners' Classes Wednesday evening, January 7, and Friday evening, January 9, 7:30.

Afternoon Class Thursday afternoon, January 8, 2:30.

Assembly Nights—Mon., Thur., Fri. and Sat.

Tuition for Beginners—Per term of 10 lessons, ladies \$5, gentlemen \$6; juveniles, per term of 12 lessons, \$5; private lessons, 5 for \$6.

Tuition can be paid \$1 a lesson until paid. Private lessons can be had afternoon or evening. We aim to teach you to dance in one term.

OAK STREET ACADEMY—827 Oak St.

Phones—Citz. 7105; Residence, Citz. 4431; Main 6189

A strictly private place for club dances, card parties and for classes that organize for special instruction.

Natco Dairy Barns Are Warm in Winter

NATCO barns are warm in winter, yet cool in summer. They provide year-round comfort for your cows. More comfort in the stable means more milk in the pail—more money in the bank.

The hollow spaces in a glazed Natco Hollow Tile wall provide a blanket of still air through which heat, cold or dampness will not pass.

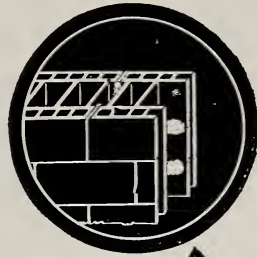
And the cost? Perhaps a little more at first, but *far less* in the end than for other construction. The saving in insurance and upkeep will repay the added investment within a few years. All further savings are clear profit.

Whatever you intend to build, our book, "Natco on the Farm," will offer helpful suggestions. Write for it today—no charge.

Ask your building supply dealer to quote you prices on Natco Hollow Tile.

National Fire Proofing Company
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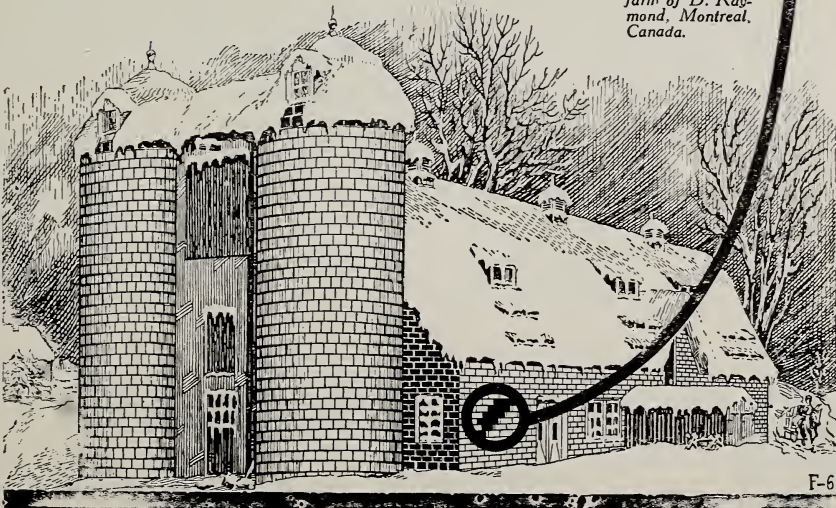
23 Factories assure a wide and economical distribution.



Section of Natco Wall showing still air spaces.

What do you intend to build? One of our farm building plans may help you—free while they last.

Barn and Silos on farm of D. Raymond, Montreal, Canada.



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STATE AND HIGH STREETS

For the Best Photos

The Largest, Finest and Best Equipped Gallery in America.
Special Rates to All O. S. U. Students.

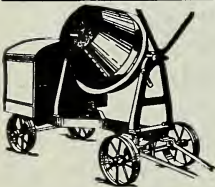
(Continued from page 112)

ed out by the above mentioned three departments has resolved itself into the group plan, herein illustrated, which presents the most logical solution in both appearance and practicability. The present spur of the Hocking Valley railroad which enters the campus will serve as the axis of a new boulevard which will cross the river on a new bridge. Just west of the Delaware Road will be located the Judging Pavilion and the Administration Building, north and south of the track respectively. On the south side of the railroad spur will be located the Sheep and Swine Buildings, which will be connected to the central driveway and each other by paved driveways. Sufficient pasturage for the animals housed in these buildings will be provided in the fields immediately adjoining them. A separate unit Poultry Plant will be located quite a ways back from the central boulevard on the south, but will be connected with it by a paved street.

North of the railroad axis will be located the Dairy, Beef Cattle and Horse

Barns, connected with the central boulevard and with each other the same as the buildings on the south. Due to the greater amount of pasturage needed for these animals, space for paddocks only will be arranged for immediately adjoining the barns. Since these larger animals are easily moved they will be taken across Lane Avenue to what is known as the Hess Tract for pasture. At the extreme west end of the group will be located the Power House, Abattoir and Store Houses, all under one roof and very convenient to the railroad since it passes through the center of the building.

The plan and all the details as above outlined were approved by the University Board of Trustees in December of nineteen eighteen. The Legislature has made the appropriations of the Swine and Sheep Barns and the complete plans and details for these buildings are at the University Architect's Office and ready for estimates. Construction work is expected to begin in the near future.



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Pure Bred Holstein-Fresian Cattle

SHOW RING TYPE—YEARLY PRODUCTION

We now offer a high class individual, well marked, slightly more white than black. Born April 18, 1919.

His Sire—LOTHIAN MAGGIE DE KOL'S SON, a young bull that will soon have several good record daughters. He is from Lothian Maggie De Kol with a year record of 1238.5 lbs. butter from 27,967.6 lbs. milk.

His Dam—LOTHIAN MARGARET DE KOL KORN-DYKE, a daughter of Pieterje Hengerveld Sir Korndyke, with a record of 28.9 lbs. butter from 560 lbs. milk in 7 days and 117.2 lbs. butter from 2200 lbs. milk in 30 days as a 4-year-old, and a 305-day record of 14,405 lbs. milk and 645.4 lbs. butter as a three-year-old. Her dam has a record of 27.6 lbs. butter in 7 days, 90.5 lbs. in 30 days and 680.7 lbs. butter from 14,639 lbs. milk in 362 days.

It will be noted the three nearest dams of this calf all have good semi-official records.

He is well-grown right in every way and is priced reasonable for immediate acceptance.

**YOUNG BULLS OF GREAT PROMISE
FOR SALE AT ALL TIMES**

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College Jewelry-Memory Books-Pillows-Pennants-Banners

Especially selected for Christmas demands

THE MENSWEAR SHOP HIGH STREET opp. East 11th Avenue

THE HESSIAN FLY

(Continued from page 110)

plowed under and put to other crops, since the chances of their making a paying crop of wheat are meager. Where such wheat is plowed under it should be done before the spring brood of flies emerges, which will commence about the middle of April in central Ohio. This will prevent the emergence of the adult flies in the spring, providing the infested wheat plants are turned to the bottom of the furrow. In plowing under such wheat for spring crop it is desirable to use a jointer to cover the "flax-seeds" deeply and prevent egress for the adults which hatch and find their way to the surface and to new wheat fields.



C. K. SEIBERT, President
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Citizens 7085. Bell, Main 2439



(Continued from page 122)

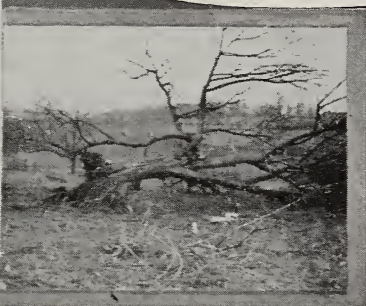
been doing just as well. He has been confining his efforts to three lines of work: Farm bureau organization work, dairy organization and more clover work. It was in this corner of the Hoosier state that the state-wide movement for farmers organization started. Fully 60 per cent of the farmers in Mr. Place's county are members of the bureau. The work along dairy lines in Lake County has been mentioned. In regard to growing clover, Mr. Place has been especially active. In spite of the fact that Lake county is famous for its dairy industry, in 1917, 27,618 acres of timothy hay were harvested as compared with 1,234 acres of clover. The value of clover in the dairy ration had not been realized. By demonstration work and by advocating the phosphating of the soil, Mr. Place has been able to boost greatly the clover acreage of the county.

Something rather unusual happened in Lake county recently, \$10,000 was appropriated by the county for a county agent's residence. So the Lake County agent will have the honor of being the first county-housed agent in Indiana.

These foregoing facts and figures may show several things but above all they show how two Buckeye "grads" are making good in Hoosierdom.



Clear Your Old Orchards With Dynamite



(Two illustrations showing tree blast and tree lying flat).

The Result of One Charge of **HERCULES DYNAMITE**

You can save days and dollars by using Hercules Dynamite to clear away old orchards and set out new trees in their places. A charge of dynamite, properly placed, will tear the toughest roots from the earth and lay the tree flat, ready for sawing. **And one man can do the job.**

Send for a copy of Progressive Cultivation, the 68 page illustrated book published by the Hercules Powder Co. It will tell you all about the uses of dynamite on the farm. If you have a special blasting job our Service Department can give you information that will be of the greatest value to you.



The Agricultural Department
HERCULES POWDER CO.
WILMINGTON, DEL.



Please send me a copy of "Progressive Cultivation." I need dynamite for
 Removing.....stumps fromacres.
 Digging.....rods of ditch.
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shows true economy
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25% to 40% more live hog
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cost per pound of pork pro-
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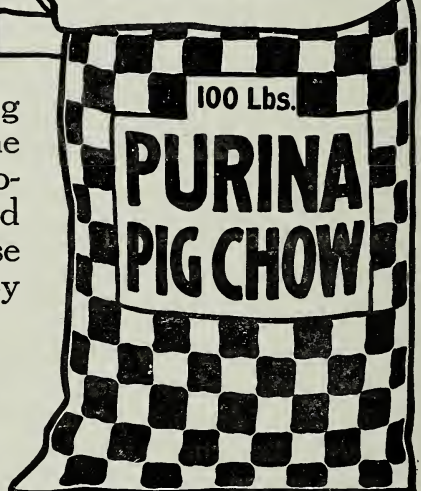
Purina Pig Chow

Such results are possible only be-
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cally mixed to include the right
proportions of food elements for quick
growth of bone and flesh and for fatten-
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thereby putting them on the market
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Put it to the test. Ask for our Hog and
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High Grade General Office Stationers, Printers, Bookbinders, Legal Publishers

Phone Orders Delivered Promptly.

(Continued from page 128)

horse hours. The seeding was done on the 11th and 12th of April, sowing $2\frac{1}{2}$ bushels per acre and 80 pounds of 16 percent acid phosphate.

No more work was done until the cutting which required 247 man hours and 68 horse hours. Threshing consumed 45 man hours and 24 horse hours. The total amount of work was $250\frac{1}{2}$ man hours and $519\frac{1}{2}$ horse hours. Counting the man hours at 25 cents per hour and the horse hours at 15 cents per hour, the total cost for labor is \$140.48.

Machinery and equipment was used 187 hours and charged at 10 cents per hour; the rent of 25 acres was \$150: cost of seed, twine, chemicals, threshing and fertilizer amounted to \$108.40. This makes a total cost, including labor, rent and use of machinery of \$417.58 for producing the 25 acres of oats.

While the yield was not as high as would be expected, it will compare favorably with the average in Ohio this year. The total yield was 650 bushels which was sold at the market price of 70 cents, netting \$455. Subtracting the total cost from this gives a net return of \$37.42 or \$1.50 per acre.

The records show that it requires 10 man hours and nearly 21 horse hours

to produce one acre of oats. Counting man hours at 25 cents and horse hours at 15 cents, the labor cost of producing one acre of oats is \$5.62. When the rent of land, cost of seed, twine, etc., is added to this, the total cost of producing one acre becomes \$16.70. This means 24 bushels will be required from every acre to pay expenses when oats is 70 cents per bushel.

Naturally, there will be a yearly variation in the cost of labor and in the yield as well as the price of oats but there will not likely be any marked changes in proportion. If the farmer would count his time at 50 cents per hour, which is less than many common laborers are receiving, he would have lost money on his oats crop this year. Those who imagine the farmer is making so much money from his labor will learn a valuable lesson if they take the time to examine some of the account books.

NEW DAIRY INSTRUCTOR

Mr. A. D. Burke has been employed as an instructor in Dairying. Mr. Burke was graduated from Wisconsin in 1916 and took up milk testing, later entering the service in Public Health work. He did work on his Master's degree at Ohio State last semester, and is now in charge of City Milk Supply.

CLUB PINS for Boys' & Girls' AGRICULTURAL CLUBS

B

BASCOM BROS.

1585 North High Street

COLUMBUS, OHIO

CHANGES MADE DURING THE SUMMER

Two promising yearling fillies have been added to the Percheron herd already on the farm. One was secured from G. A. Dix, Delaware, Ohio, and the other from Holdridge and Son, Marion, Ohio.

Three steer calves, all Shorthorns, have been purchased from Carpenter and Ross, Mansfield, Ohio. These calves will be used principally for demonstration work in beef production.

Two yearling Shorthorn heifers have been secured from Mr. John Myer, South Charleston, Ohio, for class room work and later to be added to the breeding stock.

Important addition in the Jerseys has been made in the form of Oxford Ixia Lad, a two year old weighing 1185 pounds.

REPRESENTING OHIO STATE AT
THE INTERNATIONAL

The Ohio State livestock judging team left Columbus on their way to Chicago, Sunday evening, November 23. Enroute, the party, during the early part of the week visited Purdue University at Lafayette, Indiana, and also the farm of J. Crouch & Son located near by. While there the time was spent in judging Hereford cattle and Percheron horses. The latter part of the week was spent at the University of Illinois at Champaign, while a few stock farms were also visited in the vicinity. From Champaign — Urbana the party went direct to the International Livestock Show in order to take part in the judging contest between the student teams of the various Universities.

(Continued on page 142)

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FLOWERS

GIVE US A TRIAL.

WE FURNISH THEM FOR ANY OCCASION.

Our Corsage Bouquets are original and sure to please the Ladies

F. C. VIERECK

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FARMING HIGH PRICED LAND

(Continued from page 117)

entirely because of efficient farming. While some of the differences in land values in different parts of the corn belt were due to soil differences, more of these price variations were due to variations in the efficiency of the farmers handling the land. Any tool, crop or kind of livestock or any change in rotation or farm organization which enables the farmer to produce more per workman will certainly raise the price of land in any section as soon as it is introduced.

In all frankness it is but fair to say that Ohio farmers have lagged behind those in some of the states to the west of her in this matter of farm efficiency. It is for this reason, in part, that Illinois and Iowa land was priced considerably higher than Ohio land before the war. In the past the pioneer blood has moved on west and this kind of blood is a little bolder, a little readier to bet on its own convictions as to what will pay. For this reason Ohio land is, generally speaking, a "better buy" for the brainy farmer than land in Illinois or Iowa.

But what about the immediate future of the corn belt you say. Regarding this there seems to be some difference of opinion. One thing sure there will be a mighty effort to keep the price of land at the high point to which it has risen in the last year or so. Otherwise a lot of these sales and resales will go tumbling back dropping the land into the hands of the original seller, unless he got cash or a big cash payment.

There can be no question I presume that these almost fabulous prices have been due to \$2.00 wheat and corn and \$20.00 hogs. If these prices are cut in half next year, as they bid fair to be, with farm labor still going higher it will take a lot of nerve and brain to develop farm efficiency sufficient to offset the drop. One thing sure, no fighting football team ever fought a losing game with more grit than the corn belt farmer will fight for the next few years. The first test will come with the glut of crops next year. Some ground will probably be regained the following year when a shorter production will make higher prices though these higher

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prices may bring conditions in the cities that will make us all shudder.

Then what. Perhaps it is well that we cannot even guess. Many, of whom I am sorry to be one, fear an upheaval that will well nigh test our system of government. If that times comes it will be the farmer as usual that will save the day. There is something besides money in this world. I would rather have a part in saving my Nation on \$100 corn belt land that could have been sold for \$250 or more, than to have the \$250 invested in something in the city.

What shall you do as regards the farming game? Figure it yourself. Take average yields (you expect to grow better but don't figure that way in making your estimates) multiply them by about half the price of the past year, except in the case of the

dairy business where it is to be hoped prices have risen permanently. Figure labor at present prices. If after you think over these estimates carefully you think you can pull through (granting of course that you have had practical experience) it will be safe to bet on yourself as a farmer and in all probability you will eventually thank your stars that you bet that way.

A Berkshire boar has been added to the University herd from Shannadoah Farm, New Market, Virginia.

Another addition to the herd was made recently when a Yorkshire boar was purchased from the Ramelton Farms, Mansfield, Ohio. At present the herd consists of about one hundred and fifty head, all registered, Yorkshires, Berkshires, Duroc Jerseys and Poland Chinas.

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BELGIAN AWARDS

Yearling Belgian Stallion (Woodrow Wilson). First in the Stallion Division of Eastern Belgium Futurity, nine entries competing. Champion stallion bred in Ohio. Junior Champion stallion. Reserve Grand Champion stallion.

Yearling Belgian Filly (Madam King). First, Filly Division of Eastern Belgium Futurity, fourteen entries competing. Reserve Junior Champion mare.

PERCHERON AWARDS

Stallions, 8 years or over. "Libretto" second in a class of nine stallions.

Mare 5 years and under 10. Second on "Dope" in a class of seventeen.

Mares 3 years and under 4. Fourth on "Margot" and sixth on "Beauty" in a class of eighteen.

Stallion Foals. Third on "Ohio's Vexation" in a class of ten. "Libretto Ideal," a colt bred by Ohio State University and owned and exhibited by A. C. Long, topped the list.

Group of mares. First on "Dope," "Favorite," "Beauty" and "Margot." "Favorite" and "Beauty" are both bred by the University and were foaled by "Dope."

Colt, Dam and Granddam. First on "Dope," "Favorite," and "Ohio's Vexation."

Herd Group—three mares and one stallion. First on "Libretto," "Dope," "Beauty," and "Margot."

This is a record for the University of which Professor D. J. Kays is naturally proud. It shows the class of animals which the students in Animal Husbandry have to work with, as most of us have at one time or another tried placing classes in which many or all of these individuals were up for comparison.

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Haven't you often heard your father say that about one farm hand—that "old reliable" who is always on the job, doing more and better work than any of the others?

If your father knew that he could get all the farm hands he needed, each of them as good as that "best" one, he would grab at the chance, wouldn't he?

When you begin operating your farm, after leaving school, you will hire fewer farm hands than your father does, but you will buy more farm machinery. You will have an opportunity that he didn't have in hiring labor. You can be sure of reliability in all of your implements and machines.

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View Books Prepaid,

OPPOSITE THE CAMPUS ENTRANCE

(Continued from page 136)

ties, which was held Saturday, November 29.

The men representing Ohio State, were George B. Arthur, Don C. Drake, E. K. Edwards, George F. Henning, Warren T. McVey and L. A. Kauffman. They were accompanied and coached by Professor D. J. Kays of the Department of Animal Husbandry.

A. H. Carty, '15, is on the faculty of the Mississippi Agricultural College as assistant professor of Agricultural Engineering in charge of farm structures.

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(Continued from page 116)

ment can be made by working from the common herds of the country, as they were from grade ewes. The mutton improvement was striking in the broad back well covered with meat and the legs of mutton. This lot was representative of a consignment of the University to the International this fall.

Thus the students of the University, especially those in the College of Agriculture, were shown the stock of the Department of Animal Husbandry. Along with every other phase of University development this Department has kept pace, not only in size and number of animals possessed but in quality as well. This quality could be seen very much better now that the stock is in show condition preparatory for the International. The animals made a splendid appearance, as they had been well groomed, and were certainly an inspiration to all those who saw the show.

WHAT IS LIBERAL CULTURE?

If we conceive of liberal culture as coming from these subjects which develop the judgment and understanding, enlarge the vision and insight, broaden the human sympathies, train for efficient living, and stimulate such intellectual ambitions as will make one interested in his life work, and good company for himself, then liberal culture may come to many different individuals from the study of many different things.—*Cubberly.*

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AT THE GATE OF THE CAMPUS

HOME PROJECT RESULTS IN VOCATIONAL AGRICULTURE

What an Edison Boy Did With Wheat.

Edwin Saltz of Marengo came to Edison in the fall of 1918 to complete his high school career for a first grade high school diploma. He enrolled in the agricultural department for a course in animal husbandry. With each course he carried a home project.

In field crops his project was growing 20 acres of wheat. He has carried the project to completion with a great deal of interest and enthusiasm. The final report of his project shows some facts that should be of interest to farmers. Edwin produced an average yield of 31.625 bushels per acre at a total cost of \$625.80 on the field. The cost of production per acre was \$32.64; while that per bushel was \$1.032. In determining the cost of production the following factors were considered: the labor was figured at 25 cents and 15 cents per hour for man and horse labor respectively; depreciation on the machinery used was figured at ten percent of the value; and the interest on the value of the land was figured at six percent. The value of the land was based on the local land values. Other items of expense were the cost of seed, fertilizers, twine, oil, and the threshing bill.

L. N. GEIGER,

Director of Vocational Agriculture.

The University flock has been closely culled during the past summer and now represents a small but exceptionally good group of individuals for both study and breeding purposes.

The Belgian stallion, "Woodrow Wilson," which the University purchased from John Stillberger, Salina, Ohio, made a good showing for himself at the recent State Fair, when he was accredited the champion Ohio bred stallion.

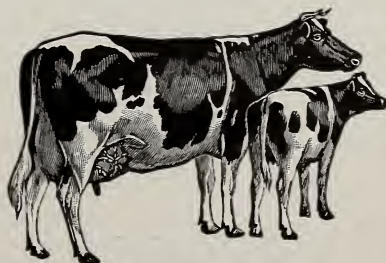
Wm. Bembower, '11, is professor of Agriculture at the Allahabad Institute, Allahabard, India.

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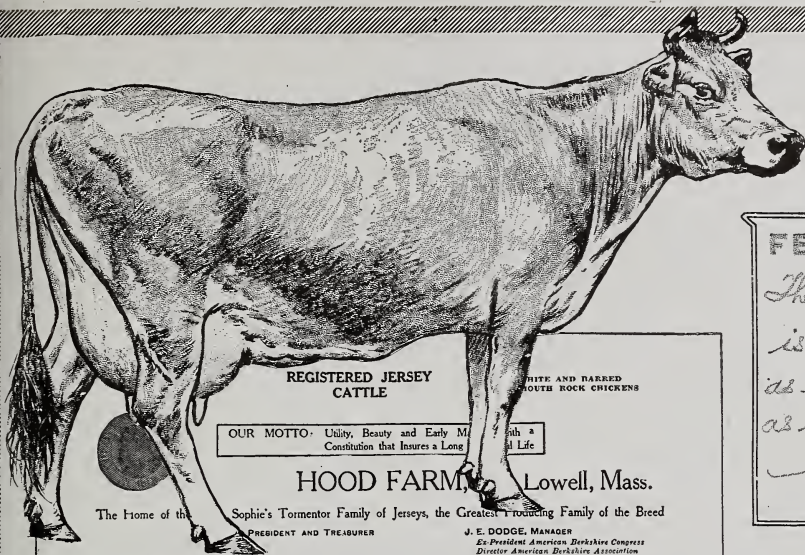
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Dear Sir:-

Yours of May 2nd at hand. I would state that as usual in her former tests, Sophie 19th of Hood Farm consumed a large proportion of Buffalo Corn Gluten Feed, ranging from three to four pounds per day during the entire year. She is now at fifteen years of age in perfect physical condition and is due to calve in August, and we look for another large record from her, showing that the feed she has consumed in past years has done her no harm. It is safe to say she has consumed while making her eight yearly records over six tons of Gluten Feed.

Yours truly,

Hood Farm,

J. E. Dodge, Mgr.

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